## AMENDMENTS TO THE CLAIMS

Following is a listing of all claims in the present application, which listing supersedes all previously presented claims:

Listing of Claims:

1. (Currently Amended) An imaging system, comprising:

an array of lenses;

a plurality of detectors for each lens, the detectors being on an image plane of the imaging system; and

a corresponding plurality of focal plane coding elements, a focal plane coding element provided for each detector, each focal plane coding element having multiple sub-pixel resolution elements, each sub-pixel resolution element being smaller than a detector, a pattern of the multiple sub-pixels resolution elements being substantially the same for the plurality of detectors associated with a corresponding lens, the plurality of focal plane coding elements being between the lens and the plurality of detectors, wherein at least two of the focal plane coding elements provided for the plurality of detectors associated with different lenses have different patterns of multiple sub-pixel resolution elements, an output of the plurality of detectors for each lens together representing an input image multiplied by a selected transform matrix.

2. (Original) The imaging system as recited in claim 1, wherein the focal plane coding element provides sub-pixel shifted multiple images on each sensor pixel.

3. (Original) The imaging system as recited in claim 1, wherein the focal plane coding element is an apertured mask.

4. (Original) The imaging system as recited in claim 1, further comprising color filters.

5. (Previously Presented) The imaging system as recited in claim 4, wherein the color filters are the sub-pixel resolution elements.

6. (Original) The imaging system as recited in claim 1, further comprising a birefringent structure adjacent the focal plane coding element.

7. (Original) The imaging system as recited in claim 1, further comprising a corresponding plurality of focusing lenses, a focusing lens between the focal plane encoding element and a corresponding sensor pixel.

8. (Original) The imaging system as recited in claim 1, wherein the selected transform matrix has fewer rows than columns.

9. (Original) The imaging system as recited in claim 1, wherein at least one sensor pixel receives light from more than one lens of the array of lenses.

10. (Original) The imaging system as recited in claim 1, further comprising a processor receiving the outputs of the sensor pixels and multiplying the outputs by an inverse of the selected transform matrix.

11. (Original) The imaging system as recited in claim 10, wherein the processor reconstructs an image from the outputs, a number of image pixels in the image being greater than the plurality of sensor pixels.

12. (Currently Amended) An imaging system, comprising:

an array of lenses;

a plurality of detectors for each lens;

a corresponding plurality of detectors, a filter provided for each detector, each filter having multiple sub-pixel resolution elements, each sub-pixel resolution element being smaller than a detector, a pattern of the multiple sub-pixels resolution elements being substantially the same for the plurality of detectors associated with a corresponding lens, and providing a sub-pixel shifted multiple image on each sensor pixel, the filter being between the lens and the plurality of detectors; and

a processor receiving outputs from each detector, the plurality of detector for each lens together representing an input image multiplied by a selected transform matrix, and reconstructing an image, a number of image pixels in the image being greater than the plurality of detectors.

13. (Previously Presented) The imaging system as recited in claim 12, further comprising a birefringent structure adjacent the plurality of filters.

14. (Original) The imaging system as recited in claim 12, further comprising a corresponding plurality of focusing lenses, a focusing lens between the filter and a corresponding sensor pixel.

15. (Original) The imaging system as recited in claim 12, wherein at least one sensor pixel receives light from more than one lens of the array of lenses.

16. (Original) The imaging system as recited in claim 12, wherein the filter is an apertured mask.

17. (Previously Presented) The imaging system as recited in claim 1, wherein the focal plane coding element is closer to the plurality of sensor pixels than to the array of lenses.

18. (Previously Presented) The imaging system as recited in claim 12, wherein the filter is closer to the plurality of sensor pixels than to the array of lenses.

19. (Previously Presented) The imaging system as recited in claim 18, wherein the filter is closer to the plurality of sensor pixels than to the array of lenses.

20. (Previously Presented) The imaging system as recited in claim 12, wherein the selected transform matrix has fewer rows than columns.

21. (Previously Presented) The imaging system as recited in claim 1, wherein a majority of patterns of multiple sub-pixel resolution elements are different from one another.

22. (Previously Presented) The imaging system as recited in claim 1, wherein a majority of patterns of multiple sub-pixel resolution elements block substantially half of incident light.

23. (Previously Presented) The imaging system as recited in claim 1, wherein each pattern of multiple sub-pixel resolution elements includes a plurality of apertures.

24. (Previously Presented) The imaging system as recited in claim 1, wherein at least one pattern of multiple sub-pixel resolution elements transmits substantially all incident light.

25. (Previously Presented) The imaging system as recited in claim 12, wherein a majority of patterns of multiple sub-pixel resolution elements are different from one another.

26. (Previously Presented) The imaging system as recited in claim 12, wherein a majority of patterns of multiple sub-pixel resolution elements block substantially half of incident light.

27. (Previously Presented) The imaging system as recited in claim 12, wherein each pattern of multiple sub-pixel resolution elements includes a plurality of apertures.

28. (Previously Presented) The imaging system as recited in claim 12, wherein at least one pattern of multiple sub-pixel resolution elements transmits substantially all incident light.

29. (Previously Presented) The imaging system as recited in claim 12, wherein color filters serve as sub-pixel resolution elements.

30. (Currently Amended) An imaging system, comprising:

an array of lenses;

a plurality of detectors for each lens, the detectors being on an image plane of the imaging system; and

a corresponding plurality of multiple image blocking portions provided for each detector, each image blocking portion being smaller than a detector, a pattern of multiple image blocking portions being substantially the same for the plurality of detectors associated with a corresponding lens, the plurality of multiple image blocking portions being between the lens and the plurality of detectors, wherein at least two patterns of multiple image blocking portions associated with different lenses are different, an output of the plurality of

detectors for each lens together representing an input image multiplied by a selected transform matrix.

31. (Previously Presented) The imaging system as recited in claim 30, wherein one lens of the array of lenses has no multiple image blocking portions associated therewith.

32. (Previously Presented) The imaging system as recited in claim 30, wherein the selected transform matrix is a Hadamard matrix.

33. (Previously Presented) The imaging system as recited in claim 30, wherein each image blocking portion is smaller than a detector in both directions.

34. (Previously Presented) The imaging system as recited in claim 33, wherein each image blocking portion in a pattern has equal dimensions in both directions.

35. (Previously Presented) The imaging system as recited in claim 1, wherein the selected transform matrix is a Hadamard matrix.

36. (Previously Presented) The imaging system as recited in claim 1, wherein each image blocking portion is smaller than a detector in both directions.

37. (Previously Presented) The imaging system as recited in claim 36, wherein each image blocking portion in a pattern has equal dimensions in both directions.

38. (Previously Presented) The imaging system as recited in claim 12, wherein the selected transform matrix is a Hadamard matrix.

39. (Previously Presented) The imaging system as recited in claim 12, wherein each image blocking portion is smaller than a detector in both directions.

40. (Previously Presented) The imaging system as recited in claim 39, wherein each image blocking portion in a pattern has equal dimensions in both directions.